Mr. W.H. Burkhart, President
Smith and Denison
Occidental Corrosion Control, Inc.
26120 Eden Landing Road
Hayward, California 94545

Dear Mr. Burkhart:

This responds to your letter of December 20, 1978, to Mr. Jack Overly of the Western Region Office of the Materials Transportation Bureau, requesting interpretations of the Federal gas pipeline safety regulations with regard to gas piping installed in concrete slabs at the Thomas Paine Square apartment project in San Francisco. You have described the piping as being on or above the earth with concrete poured around it.

In your first question, you asked: "Do Federal Regulations require cathodic protection of gas pipes embedded in concrete buildings slabs?"

Federal regulations requiring the installation of cathodic protection on gas pipelines are found in 49 CFR 192.455 and 192.457. By their terms, these regulations apply to "buried" or "submerged" pipelines. Although it could be argued that a pipeline embedded in concrete is "buried" (or perhaps "submerged") in concrete, both the ordinary meaning of these words and the regulatory history leading to the adoption of Sections 192.455 and 192.457 indicate that the terms mean "underground" and "underwater," respectively. Since the piping you have described is either on or aboveground and not underwater, it would not be subject to the cathodic protection requirements of Section 192.455 or 192.457. Likewise, Section 192.361(e)(1), which requires certain service lines to be protected against corrosion, would not apply because the piping is not located underground.

Your second question asked: "If protection required, is it required even when shorts exist within the concrete slab?"

Although cathodic protection is not required by Part 192 for the piping you have described, if, for the sake of discussion, it were, then it would have to be installed in a manner to meet the criteria of Section 192.463 by taking into account or correcting any existing shorts.

Your third question asked: "What is considered proper ventilation for dielectric unions inside walls or inside rooms?"

Section 192.467 sets forth requirements for insulating devices such as dielectric unions. However, this section does not require ventilation of dielectric unions.

We would like to add that while this letter interprets certain corrosion control requirements of Part 192 as not applying to the piping in questions, because of the nature of its environment, the piping could indeed be subject to corrosion. If corrosion were to persist to the extent the piping becomes unsafe, then Section 192.487 or 192.703(b) would apply, possibly necessitating costly repair or replacement. As a precaution against this situation, the operator could voluntarily choose to cathodically protect the piping.

We trust that this satisfactorily answers your inquiry.

Sincerely,

Cesar De Leon

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Mr. Jack Overly
U.S. Department of Transportation, OPSO
831 Mitten Road
Burlingame, California 94010

Dear Mr. Overly:

We have a problem in designing a cathodic protection system for the gas piping at Thomas Paine Square, a HUD apartment project in San Francisco. Simply stated, the gas piping is in a concrete slab and we see no evidence of conduit around the pipe.

Enclosed find specific questions. We seek answers from OPSO.

Protecting the gas piping inside the slab appears costly and perhaps impossible if there are electrical shorts inside the concrete. It is our feeling that protecting gas piping inside concrete slabs in older buildings places an onerous burden on the owners and that the safety benefits should be weighed carefully against the costs in making a decision.

Sincerely,

W. H. Burkhart
President

Enclosure

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Request for OPSO Interpretation

Some apartments are built on concrete slabs, and some have gas pipes rising through interior partitions. Apparently the method of construction used was to lay horizontal piping on or above the earth and then pour the concrete slab so that the piping is embedded in it. A building is then erected on this slab.

With this type of construction one cannot clear electrical shorts inside the concrete. And to install dielectric unions at risers, one would have to break into all interior walls containing risers and then cut and thread the pipes within the wall cavity. Code requires ventilation at dielectric unions, and this seems impossible to achieve if the union is inside the wall.

One can, however, install dielectric unions where underground service lines first enter the concrete slab. If this is done, the piping within the slab will not be cathodically protected.

We seek answers to the following questions:

(1) Do Federal Regulations require cathodic protection of gas pipes embedded in concrete building slabs?

(2) If protection is required, is it required even when shorts exist within the concrete slab?

(3) What is considered proper ventilation for dielectric unions inside walls or inside rooms?

W. H. Burkhart

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Mr. John K. Stewart, President
The John Stewart Company
300 Valley Street
Suite 301
Sausalito, California 94965

Dear Mr. Stewart:

In regard to you petition for a waiver from compliance with cathodic protection requirements at the Thomas Paine Square Apartments (Pet. No.79-1W), enclosed is a letter to Mr. W. H. Burkhart, President, Smith and Denison Occidental Corrosion Control Inc., which interprets the requirements.

Inasmuch as we have told Mr. Burkhart, that the pipelines in question are not subject to the cathodic protection requirements of 49 CFR Part 192 (regardless of when they were installed), no further action will be taken on your petition for a waiver.

Sincerely,

Cesar DeLeon
Associate Director for
Pipeline Safety Regulation
Materials Transportation Bureau

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Mr. John K. Stewart
President
The John Stewart Company
300 Valley Street
Suite 301
Sausalito, California 94965

Dear Mr. Stewart:

Thank you for your petition for waiver of compliance with the Natural Gas Pipeline Safety Act of 1968 as provided in section 3(e) of Said Act, on the subject of: the impracticality of complying with §192.455 requiring corrosion control.

Your petition has been assigned No. 79-1W. If you should write to us regarding this petition, please make reference to the petition number.

Sincerely,

A. Louise Mills
Chief, Dockets Branch
Information Services Division
Office of Program Support
Materials Transportation Bureau

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Mr. Cesar DeLeon, Associate Director
OPSO Regulations
Materials Transportation Bureau
400 7th Street, Southwest
Washington, D.C. 20590

Secretary of Transportation, Brock Adams

Subject: Request for Waiver of Compliance with the Natural Gas Pipeline Safety Act of 1968 as Provided in Section 3(e) of Said Act.

Dear Mr. DeLeon:

Under contract with the General Partner, the Department of Housing and Urban Development and FNMA, this letter is written as agent for the foregoing representing Thomas Paine Square Apartments with reference to the Natural Gas Pipeline Safety Act.

Compliance with Section 192.455 requiring corrosion control is impractical in the particular case described below:

1. The gas system blueprints for Thomas Paine Square Apartments at 1161 Turk Street, San Francisco, are dated May 20, 1971. We believe the apartments were completed in August 1972.

2. The gas distribution system operates at 1/4 PSI pressure and within buildings the gas pipe is embedded in the concrete building slab.

3. Risers pass through the concrete slab and carry gas to all floors through building walls.

4. Our corrosion engineers, Smith & Denison, tell us that dielectric unions cannot be installed in the building walls because this would violate the Unified Plumbing Code Section 1213, paragraph(h), which says "Ground joint unions may not be used at exposed fixture, appliance or equipment connections and in exposed exterior location..." Similarly, DOT regulations Section 192.467(e) prohibits installation of unions where a combustible atmosphere is anticipated.

   These engineers also report that extensive copper water piping and the electrical grounding network cannot be cathodically protected along with the gas piping as a single unit because impressed current tests show that excessively high current values would be needed to achieve cathodic protection levels.

REASONING FOR A WAIVER REQUEST:

Had these buildings been built prior to July 31, 1971, they would come under Section 192.465. In this case, frequent leak surveys and careful inspection of the pipe whenever it was exposed would suffice to determine whether corrosion is active and cathodic protection is required.

The plumbing was, however, installed and inspected after July 31, 1971, by people who apparently had no knowledge of the Pipeline Safety Act. As a result, its design is such that cathodic protection would be inordinately costly.

We therefore request that you grant a waiver to allow us to operate and maintain that portion of the gas system which is cast in concrete according to the regulations affecting pipelines installed before July 31, 1971.

No waiver is requested for other portions of the gas system.

Sincerely,

The John Stewart Company

John K. Stewart
President

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